

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of the claims in the application:

Listing of Claims:

1. (Currently Amended) A ~~compact, high efficiency, high power, solid state light source~~ light coupling device, comprising:
a ~~high power~~ solid state light-emitting device without an encasement disposed thereabout
and including a light-emitting surface; and
a light guide having a proximal light-receiving end held proximate the light-emitting ~~device~~ surface and optically coupled thereto, and a distal light-transmitting end spaced farther from the light-emitting ~~device~~ surface.
2. (Currently Amended) The ~~light source~~ light coupling device of claim 1, wherein the solid state light-emitting device comprises a light-emitting diode (LED).
3. (Currently Amended) The ~~light source~~ light coupling device of claim 2, wherein the LED emits white light.
4. (Currently Amended) The ~~light source~~ light coupling device of claim 3, wherein the LED emits a broadband visible light including at least the 470-700nm wavelength band.
5. (Currently Amended) The ~~light source~~ light coupling device of claim 2, wherein the LED has a light emitting area that is about 1mm square.
6. (Currently Amended) The ~~light source~~ light coupling device of claim 2, wherein the LED comprises a white light emitting substance that emits when excited by the diode.

7. (Currently Amended) The ~~light source~~ light coupling device of claim 2, wherein the LED draws up to 5W of power.
8. (Currently Amended) The ~~light source~~ light coupling device of claim 1, wherein the light guide comprises a bundle of a large number of small diameter individual fibers.
9. (Currently Amended) The ~~light source~~ light coupling device of claim 8, wherein the fibers have diameters of about 30-50 micrometers.
10. (Currently Amended) The ~~light source~~ light coupling device of claim 8, wherein the fibers are made of glass or plastic.
11. (Currently Amended) The ~~light source~~ light coupling device of claim 8, further comprising a ferrule that surrounds the fiber bundle.
12. (Currently Amended) The ~~light source~~ light coupling device of claim 11, wherein the ferrule is located close to but not at the proximal end of the fiber bundle.
13. (Currently Amended) The ~~light source~~ light coupling device of claim 1, wherein the light-emitting device defines a substantially flat light-emitting surface.
14. (Currently Amended) The ~~light source~~ light coupling device of claim 13, wherein the proximal end of the light guide is essentially flat and is located directly on the light-emitting surface of the light-emitting device.
15. (Currently Amended) The ~~light source~~ light coupling device of claim 2, further comprising a light-conductive material between the light-emitting device and the proximal end of the light guide, the material having a refractive index between that of the light-emitting surface and that of the light guide.

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21. (Currently Amended) The ~~light source~~ light coupling device of claim 1, wherein the light guide comprises a single glass or plastic fiber.

22. (Currently Amended) The ~~light source~~ light coupling device of claim 1, wherein the light guide comprises a fiber optic or solid taper ~~coupled to a large number of small diameter light guide fibers~~.

23. (Currently Amended) The ~~light source~~ light coupling device of claim 1 located within an endoscope.

24. (Currently Amended) The ~~light source~~ light coupling device of claim 1 configured as a self-contained source of illumination further comprising a battery power source.

25. (Currently Amended) A ~~compact, high efficiency, high power, solid state light source~~ light coupling device, comprising:

a high-power solid state white light-emitting device diode (LED) without an encasement disposed thereon;

a light guide comprising a bundle of a large number of small diameter fibers, the bundle having an essentially flat proximal light-receiving end proximate the light emitting device, and a distal light-transmitting end spaced farther from the light-emitting device; and

a mechanical light guide fixing device coupled to the light guide near its proximal end, to hold the proximal end of the light guide in position directly against ~~the~~ a light-emitting surface of the light-emitting device LED.

26. (Currently Amended) A system for use in an endoscopic application, the system comprising:

an endoscope;

a high-power solid state light-emitting device without an encasement disposed thereon, the light-emitting device being incorporated within a handle of the endoscope; and

a light guide having a proximal light-receiving end optically coupled and held proximate the high-power solid state light-emitting device, and a distal light-transmitting end spaced farther from the high-power solid state light-emitting device.

27. (Previously Added) The system of claim 26 further comprising:

a battery for powering the high-power solid state light emitting device, the battery being incorporated within the handle of the endoscope.

28. (Previously Added) The system of claim 26, wherein the proximal light-receiving end of the light guide is held directly against the high-power solid state light-emitting device.

29. (Currently Amended) ~~An compact solid state light source for an endoscope, the compact solid state light source~~ illumination device comprising:

a high-power solid state light-emitting device without an encasement disposed thereabout; and

a light guide having a proximal light-receiving end held proximate the high-power solid state light-emitting device, and a distal light-transmitting end spaced farther from the high-power solid state light-emitting device,

wherein light emitted from the high-power solid state light-emitting device is transmitted to the light guide without the use of auxiliary optical components.

30. (Currently Amended) A solid state illumination system comprising:

a high-power solid state light- emitting device without an encasement disposed thereabout; and

a light guide having a proximal light-receiving end coupled to the high-power solid state light-emitting device without the use of mirrors, lenses, or other optical components, and a distal light transmitting end spaced farther from the high-power solid state light-emitting device.

31. (Previously Added) The solid state illumination system of claim 30, wherein the high-power solid state light-emitting device is incorporated within a handle of an endoscope.

32. (New) A light coupling device comprising:

a light-emitting device including a substantially flat light-emitting surface, the substantially flat light-emitting surface being at least substantially free of a coupling gel or index-matching material; and

a light guide having a proximal light receiving end and a distal transmitting end, the proximal light receiving end being optically coupled to the substantially flat light-emitting surface and the distal transmitting end spaced farther from the light-emitting device.

33. (New) The light coupling device of claim 32 wherein the proximal end of the light guide is in direct contact with the substantially flat light-emitting surface.

34. (New) The light coupling device of claim 32 wherein the light-emitting device is without an encasement disposed thereabout.

35. (New) The light coupling device of claim 32 wherein a window is disposed between the substantially flat light-emitting surface and the light guide.

36. (New) The light coupling device of claim 32 wherein the light-emitting device comprises a light emitting diode.

37. (New) The light coupling device of claim 36 wherein the light-emitting surface of the light emitting diode comprises a coating of a white light emitting substance.